Questions

1) What are the procedures now used in your region for economic dispatch? Who is performing the dispatch (a utility, an ISO or RTO, or other) and over how large an area (geographic scope, MW load, MW generation resources, number of retail customers within the dispatch area)?

Dispatch in Alberta is performed by the AESO, which is the Alberta Electric System Operator (the ISO in Alberta). AESO System Controllers dispatch electricity to meet real-time demand, which establishes the hourly real-time market price. The hourly price is published on our Web site – www.aeso.ca. This is the price used to calculate payments to suppliers and to charge to consumers.

Here's how the price is established:

1. Power producers and importers submit electricity supply offers. Exporters submit bids to purchase electricity. Consumers submit demand bids to purchase electricity at or below a specific price. These consumer bids are submissions not to purchase if the electricity price reaches a specific point.

2. Schedulers sort the supply offers and demand bids from the lowest price to the highest price for each hour of the day. This list is called a merit order for dispatching electricity in the electricity market.

3. As electricity demand shifts throughout the day, System Controllers keep supply and demand in balance by dispatching the next offers or bids in the merit order to ensure the reliability of the overall Alberta power system. System Controllers could dispatch 'up' the merit order, calling on the next supply offer or demand bid. Alternatively, they could dispatch 'down' the merit order to reduce supply or increase demand when required to keep demand and supply in balance. Because offers and bids are ranked from lowest to highest price in the merit order, System Controllers dispatching up and down the list ensure that Alberta's overall electricity needs are met by the lowest cost option.

4. Every minute, the last eligible electricity block dispatched by the system controller sets the System Marginal Price (SMP). The SMP is updated in real-time and published on our Web site.

5. At the end of the hour, the time-weighted average of the 60 one-minute SMPs is calculated and published as the market price. Electricity, net of forward contracts registered at the AESO, is financially settled at this real-time market price.

Alberta's Electric Industry

(Year-end 2004)

- *21,178 km transmission*
- *524 substations*
- *Annual load factor 79 per cent*
- *Industrial load about 48 per cent of system load*
- *Transmission voltage levels of: 500 kV, 240 kV, 138/144kV, 69/72kV*
- *167 generation units*
- *9,236 MW system peak*
- *12,006 MW Alberta supply*
- *More than 200 participants*
- *Single control area of 660,000 km^2*

2) Is the Act's definition of economic dispatch (see above) appropriate? Over what geographic scale or area should economic dispatch be practiced? Besides cost and reliability, are there any other factors or considerations that should be considered in economic dispatch, and why?

The AESO's mandate is to facilitate Alberta's wholesale spot market, and is focused on running a fair, open and efficient market for the exchange of electric energy, and providing effective overall coordination of provincial load settlement. The AESO is also responsible for the planning and operation of the provincial transmission system, including the engineering and procurement of new facilities. The AESO also develops and administers transmission tariffs, procures ancillary services to ensure system reliability and manages settlement of the hourly wholesale market and transmission system services.

The definition contained in section 1234 of the Energy Policy Act concerning 'economic dispatch' appears to be an appropriate definition, as it confines the notion of 'economic dispatch' to a point where it would not interfere with the operating practices and reliability concerns of an ISO.

The geographic area over which economic dispatch should be practiced is the ISO's control area. In Alberta, the control area and provincial boundaries are identical.

Alberta practices economic dispatch (notwithstanding reliability practices) with the exception of managing periodic congestion in the system. Congestion in the AESO control area is a relatively rare occurrence - the AESO has not implemented a LMP scheme, and is committed to a congestion free 'postage stamp' pricing system for energy. When congestion does occur, the AESO will dispatch up the merit order in order to meet the province's energy needs.

3) How do economic dispatch procedures differ for different classes of generation, including utility-owned versus non-utility generation? Do actual operational practices differ from the formal procedures required under tariff or federal or state rules, or from the economic dispatch definition above? If there is a difference, please indicate what the difference is, how often this occurs, and its impacts upon non-utility generation and upon retail electricity users. If you have specific analyses or studies that document your position, please provide them.

Economic dispatch procedures do not differ due to class of generation, with the exceptions noted above. The AESO does not differentiate between utility-owned versus non-utility owned generation. Actual operational practices do not differ from the formal procedures required under tariff or provincial or federal rules.

4) What changes in economic dispatch procedures would lead to more non-utility generator dispatch? If you think that changes are needed to current economic

dispatch procedures in your area to better enable economic dispatch participation by nonutility generators, please explain the changes you recommend.

N/A

5) If economic dispatch causes greater dispatch and use of non-utility generation, what effects might this have – on the grid, on the mix of energy and capacity available to retail customers, to energy prices and costs, to environmental emissions, or other impacts? How would this affect retail customers in particular states or nationwide?
If you have specific analyses to support your position, please provide them to us.

N/A

6) Could there be any implications for grid reliability – positive or negative – from greater use of economic dispatch? If so, how should economic dispatch be modified or enhanced to protect reliability?

The AESO operates the market for electricity and also has the responsibility of operating the transmission system in a safe and reliable manner. The use of generation to ensure the reliability of the market is handled through a separate ancillary services market, as well as bilateral contracts between the AESO and specific generating units – not through the energy only wholesale market. Thus increased use of economic dispatch in the energy only market would not impact on reliability so long as the alternate mechanisms used to manage reliability in the system remain unchanged.